

Please replace the paragraph at p. 8, lns. 9-12, with the following paragraph:

A4 Further aspects and advantages of embodiments of the present invention shall be better understood from the following detailed description, which makes reference to the figures, in which:

Please replace the paragraph at p. 8, lns. 14-15, with the following paragraph:

A5 Fig. 1 shows a preferred embodiment of a control procedure

Please replace the paragraph at p. 17, lns. 1-6, with the following paragraph:

A6 Although embodiments of the present invention have been described in connection with preferred embodiments, these do not restrict the scope, and are only intended to convey a better understanding of the invention. Much rather, the scope of the invention is determined by the appended claims.

IN THE ABSTRACT

Please remove the paragraph at p. 28, ln. 30.

IN THE CLAIMS

Please amend the claims as follows:

Sub 87 1. (AMENDED) A method for controlling a data unit oriented communication between a sender and a receiver operating in accordance with a predetermined communication protocol, comprising:

dividing, by the sender, of an amount of data to be sent into at least one data unit having a structure determined by the protocol;

acknowledging, by the receiver, of correct receipt of data units by returning acknowledgment data units to the sender;

sending, by the sender, of the data units in accordance with a flow control procedure conducted on the basis of at least one adaptive parameter and the acknowledgment data units;

wherein the flow control procedure comprises a data loss detection mechanism capable of detecting data loss in the communication;

wherein the data loss detection mechanism is triggered to indicate the potential loss of data by at least one predetermined event;

wherein, in response to the triggering of the data loss detection mechanism, a corresponding response procedure is conducted; and

wherein the response procedure comprises at least two different modes for adapting the at least one adaptive parameter.

2. (AMENDED) The method of claim 1, wherein:

the data loss detection mechanism comprises a time out mechanism

after a data unit is sent, the sender monitors a time out period, and;

if no acknowledgment data unit associated with the data unit is received before the time out period expires, the time out mechanism is triggered.

3. (AMENDED) The method of claim 1, wherein:

the data loss detection mechanism comprises a duplicate acknowledgment detection mechanism;

the sender monitors the received acknowledgments, and;

if a data unit is acknowledged a predetermined number of times, the duplicate acknowledgment detection mechanism is triggered.

p. 12, line 24

4. (AMENDED) The method of claim 2, wherein the response procedure comprises the retransmission of a given data unit.

5. (AMENDED) The method of claim 4, wherein the decision on which of the at least two modes to choose for adapting the adaptive parameters is made on the basis of at least one acknowledgment data unit received by the sender after having retransmitted the given data unit.

via the server,

6. (AMENDED) The method of claim 2, wherein the time out period comprises one of the adaptive parameters.

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How is it at least one?

7. (AMENDED) The method of claim 1, wherein the flow control procedure is window based and at least one flow control window is among the adaptive parameters.

8. (AMENDED) The method of claim 5, wherein:

the at least two modes consist of a first and a second mode, the first mode being associated with a judgment that the triggering event was caused by the loss of the given data unit; and

the second mode is associated with at least one of a judgment that the given data unit and a judgment that the acknowledgment data unit for the given data unit has been excessively delayed.

9. (AMENDED) The method of claim 8, wherein:

the sender marks data units being sent such that an original transmission can be distinguished from a retransmission; and

the receiver correspondingly marks the acknowledgment data units, such that the acknowledgment of an originally sent data unit can be distinguished from the acknowledgment of the retransmission of the data unit.

10. (AMENDED) The method of claim 9, wherein:

the sender marks data units by including a time stamp in each sent data unit, the time stamp indicating the time the data unit was sent; and

the receiver marks the acknowledgment data unit for a received data unit by including the time stamp contained in the received data unit in the acknowledgment data unit for the received data unit.

11. (AMENDED) The method of claim 9, wherein:

the sender marks data units by including a bit string in each sent data unit, the bit string having at least two different values for distinguishing between an original transmission and a retransmission; and

A7 the receiver marks the acknowledgment data unit for a received data unit by including the bit string contained in the received data unit in the acknowledgment data unit for the received data unit.

12. (AMENDED) The method of claim 11, wherein the bit string consists of a single bit.

13. (AMENDED) The method of claim 11, wherein the bit string consists of a plurality of bits, such that the bit string is capable of distinguishing between different retransmissions.

14. (AMENDED) The method of claim 10, wherein:

the first mode is chosen if the first acknowledgment data unit associated with the given data unit received ^{from the receiver} after having retransmitted the given data unit acknowledges the retransmission of the given data unit; and M

*Acknowledges the
Transmission (retransmission problem)*

*1st mode \Rightarrow propping
retransmit*
*2nd mode \Rightarrow orig.
completion*

the second mode is chosen if the first acknowledgment data unit associated with the given data unit received after having retransmitted the given data unit acknowledges the original transmission of the given data unit.

15. (AMENDED) The method of claim 8, wherein:

the sender measures the round trip time associated with the connection for sending of the amount of data;

the time between the retransmission of the given data unit and the receipt of the first acknowledgment data unit associated with the given data unit is determined and compared to a value derived from [at least one of the round trip time measurements]; and
the first or second mode is chosen on the basis of the result of the comparison.

16. (AMENDED) The method of claim 15, wherein:

the value derived from the round trip time measurements is the shortest round trip time for the connection; and

the second mode is chosen if the time between the retransmission of the given data unit and the receipt of the first acknowledgment data unit associated with the given data unit is smaller than a predetermined fraction of the smallest round trip time.

17. (AMENDED) The method of claim 8, wherein the second mode comprises adapting the time out period on the basis of the time that elapsed between the original transmission of

the given data unit and receipt of the first acknowledgment data unit associated with the given data unit.

18. (AMENDED) The method of claim 8, wherein:

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[the flow control procedure is window based and a congestion window is used;

the value of the congestion window at the time of the triggering event is stored after the triggering event occurred and subsequently the value of the congestion window is reset to a predetermined value; and

A? if the second mode is chosen after having received the first acknowledgment data unit associated with [the given data unit], the value of the congestion window is set to the value it would have assumed, had [the response procedure not taken place].
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*reset to
rate of
B when to
control
congestion*

19. (AMENDED) A communication device for data unit oriented communication in accordance with a predetermined communication protocol, wherein:

the communication protocol prescribes that a sender in a communication divides an amount of data to be sent into at least one data unit having a structure determined by the protocol and a receiver in the communication acknowledges the correct receipt of data units by returning acknowledgment data units to the sender;

the communication device, when acting as the sender, is arranged to send data units in accordance with a flow control procedure conducted on the basis of at least one adaptive parameter and the acknowledgment data units;

the flow control procedure comprises a data loss detection mechanism capable of detecting data loss in the communication;

the data loss detection mechanism is triggered to indicate potential loss of data by at least one predetermined event; and

in response to the triggering of the data loss detection mechanism, a corresponding response procedure is conducted, the response procedure comprising at least two different modes for adapting the at least one adaptive parameter.

A7 20. (AMENDED) The device of claim 19, wherein the data loss detection mechanism comprises a time out mechanism, such that after a data unit is sent, the device, when acting as the sender, monitors a time out period and, if no acknowledgment data unit associated with the data unit is received before the time out period expires, the time out mechanism is triggered.

21. (AMENDED) The device of claim 19, wherein the data loss detection mechanism comprises a duplicate acknowledgment detection mechanism, such that the device, when acting as the sender, monitors the received acknowledgments and, if a data unit is acknowledged a predetermined number of times, the duplicate acknowledgment detection mechanism is triggered.

22. (AMENDED) The device of claim 19, wherein the response procedure comprises retransmission of a given data unit.

23. (AMENDED) The device of claim 22, wherein the decision of which of the at least two modes to choose for adapting the adaptive parameters is made on the basis of at least one acknowledgment data unit received by the sender after having retransmitted the given data unit.

24. (AMENDED) The device of claim 20, wherein the time out period comprises one of the adaptive parameters.

1A7 25. (AMENDED) The device of claim 19, wherein the flow control procedure is window based, and at least one flow control window is among the adaptive parameters.

26. (AMENDED) The device of claim 23, wherein the at least two modes consist of a first and a second mode, the first mode being associated with a judgment that the triggering event was caused by the loss of the given data unit, and the second mode being associated with at least one of a judgment that the given data unit and a judgment that an acknowledgment data unit for the given data unit has been excessively delayed.

27. (AMENDED) The device of claim 26, wherein:

the device, when acting as the sender, marks data units being sent such that an original transmission can be distinguished from a retransmission; and

the device, when acting as a receiver, correspondingly marks the acknowledgment data units, such that the acknowledgment of an originally sent data unit may be distinguished from the acknowledgment of the retransmission of the data unit.

28. (AMENDED) The device of claim 27, wherein:

the device, when acting as the sender, marks data units by including a time stamp in each sent data unit; the time stamp indicates the time the data unit was sent; and

A7 the device, when acting as a receiver, marks the acknowledgment data unit for a received data unit by including the time stamp contained in the received data unit in the acknowledgment data unit for the received data unit.

29. (AMENDED) The device of claim 27, wherein:

the device, when acting as the sender, marks data units by including a bit string in each sent data unit; the bit string has at least two different values for distinguishing between an original transmission and a retransmission; and

the device, when acting as a receiver, marks the acknowledgment data unit for a received data unit by including the bit string contained in the received data unit in the acknowledgment data unit for the received data unit.

30. (AMENDED) The device of claim 28, wherein:

the first mode is chosen if the first acknowledgment data unit associated with the given data unit received after having retransmitted the given data unit acknowledges the retransmission of the given data unit; and

the second mode is chosen if the first acknowledgment data unit associated with the given data unit received after having retransmitted the given data unit acknowledges the original transmission of the given data unit.

31. (AMENDED) The device of claim 26, wherein:

the device, when acting as the sender, measures the round trip time associated with the connection for sending of the amount of data;

A7 the time between the retransmission of the given data unit and the receipt of the first acknowledgment data unit associated with the given data unit is determined and compared to a value derived from at least one of the round trip time measurements; and

the first or second mode is chosen on the basis of the result of the comparison.

32. (AMENDED) The device of claim 31, wherein:

the value derived from the round trip time measurements comprises the shortest round trip time for the connection; and

the second mode is chosen if the time between the retransmission of the given data unit and the receipt of the first acknowledgment data unit associated with the given data unit is smaller than a predetermined fraction of the smallest round trip time.

33. (AMENDED) The device of claim 26, wherein the second mode comprises adapting the time out period on the basis of the time that elapsed between the original transmission of the given data unit and the receipt of the first acknowledgment data unit associated with the given data unit.

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34. (AMENDED) The device of claim 26, wherein:
the flow control procedure is window based and a congestion window is used;
the value of the congestion window at the time of the triggering event is stored after the triggering event occurred and subsequently the value of the congestion window is reset to a predetermined value; and
if the second mode is chosen after having received the first acknowledgment data unit associated with the given data unit, the value of the congestion window is set to the value it would have assumed, had the response procedure not taken place.

REMARKS

It is respectfully submitted that the amendments made to the claims herein are neither being presented nor made in response to the citation of any prior art known to the Applicant or the Applicant's attorneys. These claim amendments are further not made for any reason related to any statutory requirements for patentability. These claim amendments are made solely to more completely claim that to which the Applicant is entitled. Applicant's invention should only be considered limited by the claims as they now exist and the equivalents thereof. It is not the Applicant's intent to narrow any claim element by the amendments made herein.